

## **AMENDMENTS TO THE SPECIFICATION:**

Please replace the abstract with the following:

A reduced search space minimum distance decoding method provides average probability of error performance close to optimal MAP decoding. The decoding algorithm provides dramatic complexity reductions compared with MAP decoding. A sub-optimal decoder receives a collection of signal vectors  $\mathbf{y}_1 \dots \mathbf{y}_k$ , with  $k$  denoting a positive integer and generates an estimated transmitted multidimensional symbol  $\tilde{S}$ . The estimated transmitted multidimensional symbol  $\tilde{S}$  is decoded using hierarchical subset decoding a subset is determined therefrom. ; A reduced search space  $V$  is generated and minimum distance decoding is used to decode the received symbol vectors  $\mathbf{y}_1 \dots \mathbf{y}_k$  in the reduced search space  $V$ . one or more of the following: an estimated multidimensional symbol  $\tilde{S}$ , soft bit information, or hard bit information are generated therefrom.